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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Tomoya Kodama

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EXAMINER

CHAU, COREY P

ART UNIT

PAPER NUMBER

2615

DATE MAILED: 09/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/915,348

Applicant(s)

KODAMA, TOMOYA

Examiner

Corey P. Chau

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 8-10, 14, 24, 30, 32-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 8-10, 14, 24, 30 + 32-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/06/2006 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-3, 8-10, 14, 24, 30, and 32-34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

4. Claim 1 recites "a space required in the instruction memory, and the data memory of the internal memory for the instructions and the data of the audio process for the next one of the procedures is reserved by the control processor, thereby configured to allow preparation of the data and the instructions in the internal memory before the

Art Unit: 2615

next one of the procedures starts". However the specification discloses on page 19, line 20 to page 21, line 21 does not clearly provide support the limitation added in Claim 1. Furthermore, the specification discloses "the general purpose processor 10 controls to make a reservation of sending an instruction to the DMA controller 15", which is not equivalent to "a space required in the instruction memory, and the data memory of the internal memory for the instructions and the data of the audio process for the next one of the procedures is reserved by the control processor, thereby configured to allow preparation of the data and the instructions in the internal memory before the next one of the procedures starts" and Claim 34 recites "the control processor reserves the internal memory by sending an instruction to the DMA memory" which is not equivalent to "the general purpose processor 10 controls to make a reservation of sending an instruction to the DMA controller 15", therefore the claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 2-3, 8-10, 14, 24, 30, and 32-33 depends on a rejected base claim, therefore claims 2-3, 8-10, 14, 24, 30, and 32-33 are also rejected.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2615

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3, 8-10, 14, 24, 30, and 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6275239 to Ezer.

7. Regarding Claim 1, Ezer discloses an audio processor which processes an input data stream via an external memory (103)(Fig. 1), comprising:

a control processor (101) to fetch in, when executing one of divided procedures of an audio process, a program and audio data corresponding to a next one of the procedures from the external memory (103) which stores programs and a group of data used for sequentially executing the divided procedures of the audio process (Figs. 5 and 6);

an internal memory (Fig. 4; claim 6) to store the program and audio data fetched from the external memory by the control processor and corresponding to the one and the next one of the procedures;

a coprocessor (102) to subserve the control processor to subject audio data of the input data stream to the divided procedures of the audio process sequentially (abstract; Figs. 8 and 9), based on the program fetched by the control processor (Figs. 1 and 2; column 1, line 60 to column 2, line 31).

Ezer does not expressly disclose the coprocessor executing multiplication/accumulation addition according to VLIW (Very Long Instruction Word). However, Examiner takes Official Notice that it would have been obvious to one having ordinary skill in the art to have the coprocessor execute multiplication/accumulation, addition according to VLIW (Very Long Instruction Word), wherein one VLIW instruction

Art Unit: 2615

encodes multiple operations and therefore multiple operations can be handled at the same time, resulting in faster processing. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Ezer to have the coprocessor execute multiplication/accumulation, addition according to VLIW (Very Long Instruction Word), wherein one VLIW instruction encodes multiple operations and therefore multiple operations can be handled at the same time, resulting in faster processing.

Ezer as modified discloses:

wherein the internal memory comprises an instruction memory configured to store an instruction group of the program transferred from the external memory device and a data memory configured to store a data group transferred from the external memory device, and the coprocessor subserves the control processor to perform the process based on the instruction group using reconstruction to generate audio data (Figs. 6-7; column 9, line 44 to column 10, line 40).

Ezer as modified does not expressly disclose wherein a space required in the instruction memory, and the data memory of the internal memory for the instructions and the data of the audio process for the next one of the procedures is reserved by the control processor, thereby configured to allow preparation of the data and the instructions in the internal memory before the next one of the procedures starts.

However, the examiner takes Official Notice that it is well known in the art that a control processor (i.e. CPU) allocates memory for specific purposes, also known as memory allocation, in other words, reserving memory for specific purposes, wherein the control

processor generally reserves fixed amounts of memory at startup and allocates more when the processing requires it in order to perform a specific processes, which can not be preformed without the required memory. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Ezer as modified to have the control processor (i.e. CPU) allocates memory for specific purposes, also known as memory allocation, in other words, reserving memory for specific purposes, wherein the control processor generally reserves fixed amounts of memory at startup and allocates more when the processing requires it in order to perform a specific processes, which can not be preformed without the required memory.

8. Regarding Claim 2, Ezer as modified discloses the coprocessor is configured to subserve the control processor to subject sequentially the audio data to decoding, noise-less decoding, noise reduction, filter bank, and block switching in accordance with the programs and data fetched from the external memory in units of one procedure (Figs. 8 and 9; column 10, line 41 to column 11, line 42).

9. Regarding Claim 3, Ezer as modified discloses the coprocessor (102) is configured to subserve the control processor to execute the program fetched in the internal memory from the external memory in accordance with progress of the procedures of the audio process (Fig. 4).

10. Regarding Claim 8, Ezer as modified discloses the control processor sequentially transfers a plurality of program modules corresponding to procedures of the audio process to the coprocessor from the external memory according to the progress of the procedures (Figs. 1 and 2; column 1, line 60 to column 2, line 31).

11. Regarding Claim 9, Ezer as modified discloses the coprocessor (102) subserves the control processor to execute decoding of bit stream data, noiseless decoding, inverse quantization, scale factor, TNS processing, filter bank processing, and the block switching, in this order, to reconstruct audio data (Figs. 8 and 9; column 10, line 41 to column 11, line 42).

12. Regarding Claim 10, Ezer as modified discloses the control processor includes a function of predicting which procedure is performed after the procedure which is currently performed (Figs. 4 and 6).

13. Regarding Claim 14, Ezer as modified discloses the control processor is further configured to release a storage region of the internal memory occupied by the data stored in the internal memory or a program if the data stored in the internal memory or the program becomes unused by the coprocessor (Figs. 2, 4, 7, and 9).

14. Regarding Claim 24, Ezer as modified discloses the internal memory includes an instruction memory and a data memory, and at least two parallel busses lead from the instruction memory and the data memory to the coprocessor (Fig. 4).

15. Regarding Claim 30, Ezer as modified discloses an audio input/output interface (Fig. 1); and an internal bus; wherein the internal bus links the control processor, the coprocessor and the audio input/output interface together (Figs. 4).

16. Regarding Claim 32, Ezer as modified a DMA controller configured to control writing of data to the external memory, the instruction memory and the data memory, and reading of the data therefrom by a direct access memory transfer, wherein the internal memory stores a program module which request the DMA controller for

Art Unit: 2615

preparing, while continuing the procedure which is currently performed, the data group and instruction group that are required for the next procedure (Figs. 6-7; column 9, line 44 to column 10, line 40).

17. All elements of Claim 33 are comprehended by Claims 1 and 32. Claim 33 is rejected for the reason stated apropos to Claims 1 and 32.

18. Regarding Claim 34, Ezer as modified discloses the divided procedures of the audio process include five different processing stages performed sequentially, the five different processing stages using different memory spaces of the data memory in the internal memory (Figs. 8 and 9; column 10, line 41 to column 11, line 42).

Conclusion

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Corey P. Chau whose telephone number is (571)272-7514. The examiner can normally be reached on Monday - Friday 9:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on (571)272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2615

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

September 18, 2006
CPC


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SUPERVISORY PATENT EXAMINER